



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/586,875

06/05/2007

Carlos Alberto Labate

066281-0014

1556

20277 7590 10/08/2010  
MCDERMOTT WILL & EMERY LLP  
600 13TH STREET, N.W.  
WASHINGTON, DC 20005-3096

EXAMINER

PAGE, BRENT T

ART UNIT

PAPER NUMBER

1638

MAIL DATE

DELIVERY MODE

10/08/2010

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/586,875	<b>Applicant(s)</b> LABATE ET AL.	
	<b>Examiner</b> BRENT PAGE	<b>Art Unit</b> 1638	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 July 2010.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) 26-33 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-25 and 34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>09/2010</u> . | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Election/Restrictions***

Applicant's election of Group I in the reply filed on 07/27/2010 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claims 26-33 are withdrawn by the Examiner as being drawn to nonelected subject matter. Claims 1-25 and 34 are examined herein on the merits.

***Claim Rejections - 35 USC § 101***

Claim 21 is rejected under 35 U.S.C. 101 because the claim is drawn to nonstatutory subject matter. The claim is drawn to "derived plants" originated from a genetically modified plant. However due to Mendelian inheritance of the transgene, some seeds produced by a transgenic plant will not have a copy of the transgene, and will thus be indistinguishable from naturally occurring seeds and result in plants that do not comprise the claimed nucleic acid. Accordingly, the claims are drawn to a product of nature, which is non-statutory subject matter.

See *Diamond v. Chakrabarty*, 447 U.S. 303 (1980), *Funk Bros. Seed Co. V. Kalo inoculant Co.*, 233 U.S. 127 (1948), and *American Fruit Growers v. Brogdex Co.*, 283 U.S. 2 (1931).

This rejection can be overcome by amendment of claim 21 to indicate that the seed comprises said cassette.

***Claim Rejections - 35 USC § 101&112***

Claims 7, 20, and 25, are rejected for not setting forth a proper process claim. Claim 7 provides for the use of a gene expression cassette, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claim 7 is rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any step involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd. App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Claim 20 provides for the use of a plant, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claim 20 is rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any step involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example Ex parte Dunki, 153 USPQ 678 (Bd. App. 1967) and Clinical Products, Ltd. v. Brenner, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Claim 25 provides for the use of a genetically modified seed, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claim 25 is rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any step involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example Ex parte Dunki, 153 USPQ 678 (Bd. App. 1967) and Clinical Products, Ltd. v. Brenner, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 12 recites the limitation "said plant cell" in line 1. There is insufficient antecedent basis for this limitation in the claim. Claim 8, from which claim 12 depends, recites "plant cells" rather than the singular ---plant cell---.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2 and 4-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Kobayashi et al (2002 Plant Cell Physiology 43:1259-1265).

The claims are drawn to an expression cassette characterized by comprising a gene encoding UDP-D-glucuronate carboxylase involved in the biosynthesis of hemicelluloses such as xylans and the use of said cassette in overexpressing said gene.

Kobayashi et al teach the isolation and characterization of the UDP-D-glucuronate carboxylase from pea and the overexpression of said gene in *E. coli* cells wherein the gene is known to be involved in biosynthesis of xylans.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-25 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi et al (2002 Plant Cell Physiology 43:1259-1265 in view of Cameron-Mills et al (US Patent 6031155).

The claims are drawn to an expression cassette characterized by comprising a gene encoding UDP-D-glucuronate carboxylase involved in the biosynthesis of hemicelluloses such as xylans and the use of said cassette in overexpressing said gene. The claims are also drawn to methods for the genetic transformation of plant cells and methods to obtain a genetically modified plant comprising transforming an *Agrobacterium* and then transforming a plant cell and regenerating a plant therefrom, wherein the plant is an angiosperm, gymnosperm or eucalyptus, as well as derived plants and genetically modified seeds.

Kobayashi et al teach the isolation and characterization of the UDP-D-glucuronate carboxylase from pea and the overexpression of said gene in *E. coli* cells wherein the gene is known to be involved in biosynthesis of xylans. Kobayashi et al also state "The authors discussed that the Golgi-bound UXS may be a part of a multienzyme complex involved in xyloglucan synthesis" (see page 1263 1<sup>st</sup> paragraph),

Art Unit: 1638

and "Substantial information has been accumulated on the structure and property of the individual component of plant cell walls, however, little is known about their interactions and physiological functions in muro. Mutant plants having altered composition in cell wall polymers are promising tools in elucidating these aspects" (see page 1263, 2nd paragraph).

Kobayashi et al do not teach transforming an *Agrobacterium* with said construct or transforming plants with said construct.

Cameron-Mills et al teach the transformation of plants with cell wall degrading enzymes such as endoxylanase that are part of the hemicellulose biosynthetic pathway and alter xylan synthesis, (see claims 1-9, for example) and methods of transforming a plant cell (see claim 30, 33 and 37, for example) and transformed plants therefrom (see claim 29, for example) and plant regeneration from said transformed cells (see 2<sup>nd</sup> paragraph under Gene Transformation Methods, for example), which includes seeds therefrom (see Example 5, for example) wherein *Agrobacterium* are transformed with said cassette (see paragraphs 1-2 under "Agrobacterium-Mediated Transformation" for example).

Given the state of the art and the disclosures by Kobayashi et al and Cameron-Mills et al, it would have been obvious to one of ordinary skill in the art to transform a plant using *Agrobacterium*-mediated transformation as taught by Cameron-Mills et al with the construct taught by Kobayashi, and one of ordinary skill in the art would have been motivated to do so based on the disclosure by Kobayashi indicating that the characterized gene is involved in hemicellulose formation and the statements



Art Unit: 1638

suggesting that down-regulating such genes in plants would help elucidate protein interactions in plants. One of ordinary skill in the art would have a reasonable expectation of success given the demonstration by Cameron-Mills et al of the successful transformation of plants with cell wall degrading enzymes. Accordingly, the claims as written are obvious over Kobayashi et al in view of Cameron-Mills et al. The individual species as well as designations for angiosperms or gymnosperms are considered design choices and any plant species could be reasonably be chosen for said transformation.

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRENT PAGE whose telephone number is (571)272-5914. The examiner can normally be reached on Monday-Friday 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anne Marie Grunberg can be reached on (571)-272-0975. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1638

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Brent Page/  
Examiner, Art Unit 1638